

Rotational Position Sensor, Kit Type, Hall Effect Technology



FEATURES

- Accurate linearity down to $\pm 0.5\%$
- All electrical angles available up to 360°
- Extremely long life: greater than 100M cycles
- Model dedicated to all applications in harsh environments
- Delivered as a kit: 2 elements
- Ideally suited for external applications: industrial or off-road markets
- Sealing level up to: IP68

QUICK REFERENCE DATA

Sensor type	Kit rotational, hall effect
Output type	Wires
Market appliance	Industrial
Dimensions	48 mm x 43 mm x 12 mm

ELECTRICAL SPECIFICATIONS

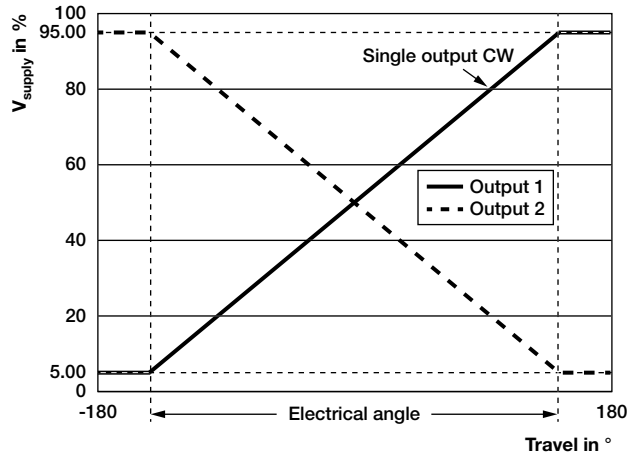
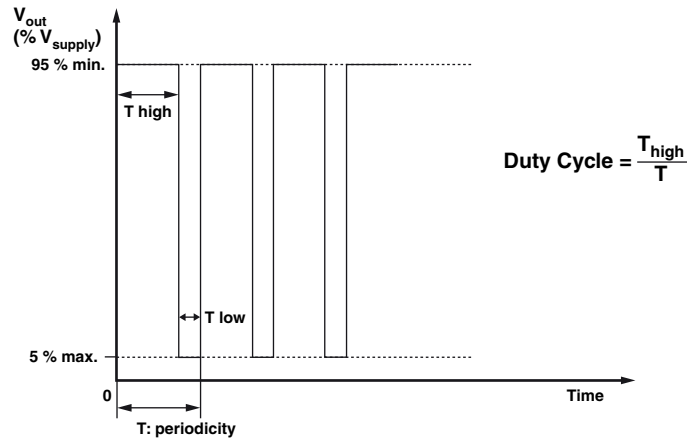
PARAMETER	STANDARD
Supply voltage, V_{supply}	$5\text{ V} \pm 0.5\text{ V}$ with regulator = 8 V to 16 V
Output mode	Analog or PWM CW or CCW
Electrical output range, V_{out}	for $V_{\text{supply}} 5\text{ V}$: 5 % to 95 % V_{supply} ratiometric for $V_{\text{supply}} < 11\text{ V}$: output from 0 V to $V_{\text{sub}} - 1\text{ V}$ for $V_{\text{supply}} > 11\text{ V}$: output from 0 V to 10 V max.
Electrical angle, Θ	any angle (1° to 360°)
Independent linearity	$A = \pm 1\%$ (V_{supply}) $B = \pm 0.5\%$ (V_{supply})
No load supply current, I_{supply}	< 16 mA single output < 32 mA redundant output
Over voltage protection - output enabled	for output (5 V): +20 V for output (10 V): 29 V
Reverse voltage protection - output disabled	for output (5 V): -10 V for output (10 V): -35 V
Temperature coefficient, $\Delta V_{\text{out}}/\Delta T$ (25 °C)	60 $\mu\text{V}/^\circ\text{C}$ typ.
Hysteresis	< 0.35°
Resolution	12 bits
Resistive load recommended	$R_{\text{pull-down}}$ OR $R_{\text{pull-up}}$: $V_{\text{out}} 5\text{ V}$ Min.: 1 k Ω Typ.: 10 k Ω
Capacitive load recommended	4.7 nF
Start up cycle	< 15 ms

MECHANICAL SPECIFICATIONS

PARAMETER	
Mounting type	2 oblong holes
Housing	plastic
Output type	single output: cable 3 x 0.35 mm ² redundant: cable 4 x 0.25 mm ² length: 400 mm min.

OUTPUT SPECIFICATIONS

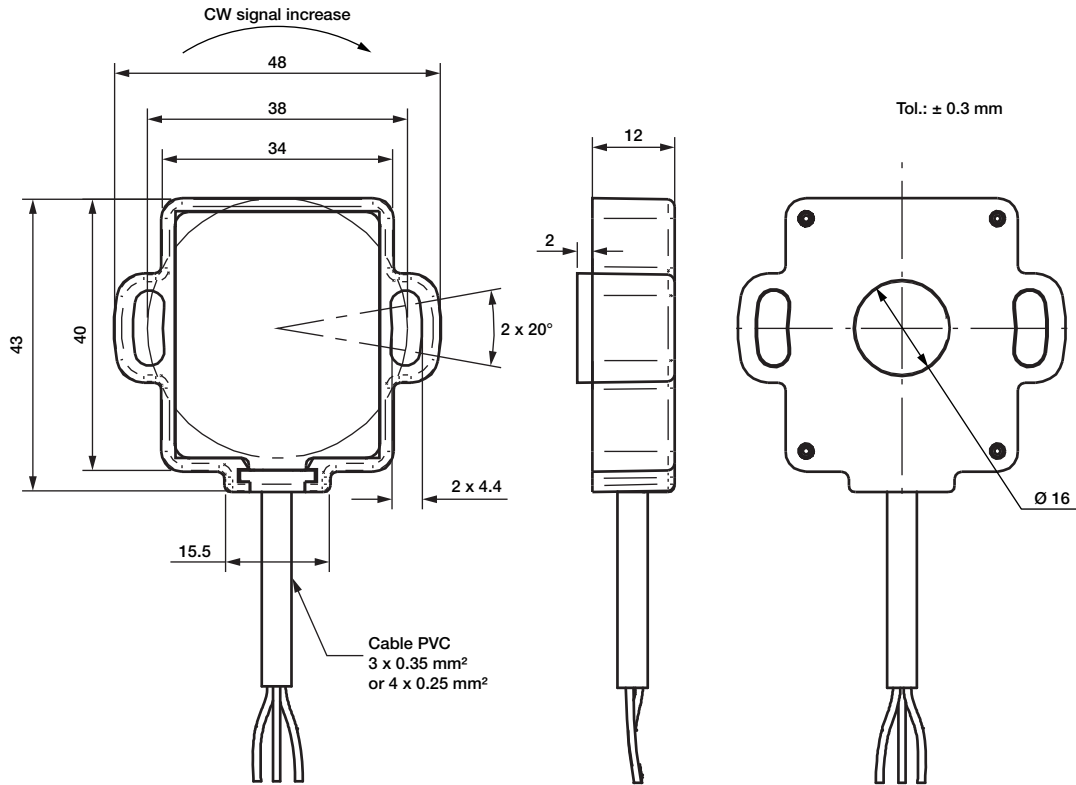
For $V_{\text{supply}} = 5 \text{ V}$
 $V_{\text{out}} 0.25 \text{ V} \rightarrow 4.75 \text{ V}$


 V_{OUT} PWM

ENVIRONMENTAL SPECIFICATIONS

Life	unlimited mechanical lifetime
Rotation speed	120 rpm max.
Vibrations	20 g, 10 Hz to 2000 Hz EN60068-2-6
Shocks (1/2 sinus, 11 ms)	50 g EN60068-2-27
Operating temperature range	-45 °C; +105 °C
Storage temperature range	-45 °C; +105 °C
Sealing	IP67 (up to IP68)
Electrostatic discharges ESD	contact: $\pm 4 \text{ kV}$, air: $\pm 8 \text{ kV}$ EN61000-4-2
Radiated electromagnetic emissions	30 MHz to 1GHz EN61000-6-4
Immunity to radiated RF electromagnetic fields	10 V/m EN61000-4-3
	10 V/m, 900 MHz, heating 200 Hz EN61000-6-2 and EN50204
Immunity to radiated Electromagnetic disturbances	200 V/m, 150 kHz to 1 GHz IEC 62132-2 part 2
Immunity to power frequency magnetic field	150 G (15 mT) external field, DC and 50 Hz

Note

- Nothing stated herein shall be construed as a guarantee of quality or durability.

DIMENSIONS in millimeters

PINOUT

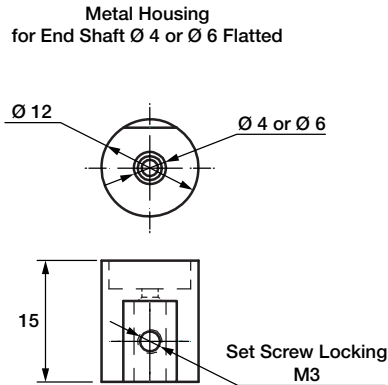
Blue	signal 1
White	Gnd
Red	V+

PINOUT - Redundant version

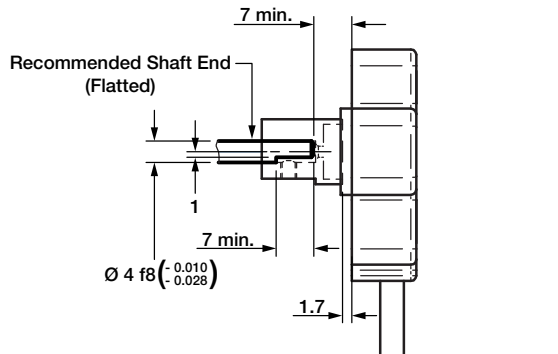
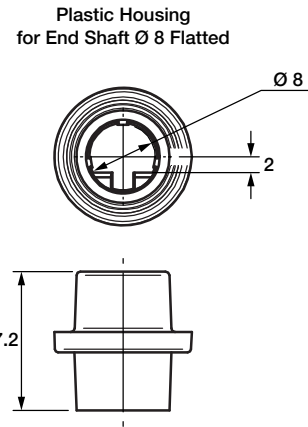
Blue	signal 1
White	Gnd
Red	V+
Yellow	signal 2

POSITION MARKERS

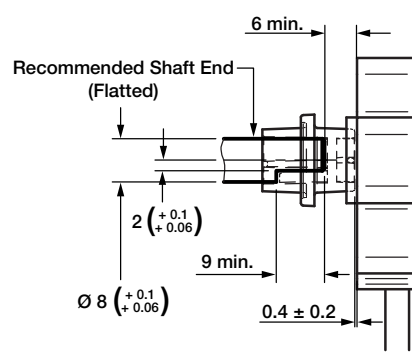
Position marker A (shaft Ø 4): ACAPTAXEW2566
 Position marker B (shaft Ø 6): ACAPTAXEW2567



Position marker C: ACAPTAXEW2568



Shaft reference position: signal 1 = 50 %



Shaft reference position: signal 1 = 50 %

SAP PART NUMBERING

SMHE	1	A	A	180	C	11	A	xxxx
MODEL	FEATURES		LINEARITY	ANGLE	OUTPUT TYPE		OUTPUT SIGNAL	SPECIAL REQUEST
	1: single output 2: redundant output	A: with positioning marker A B: with positioning marker B C: with positioning marker C X: without positioning marker Z: other (custom)	A: ± 1 % B: ± 0.5 %	045: 45° 090: 90° 120: 120° 180: 180° 270: 270° 360: 360° xxx: any angle	C: cable Z: other	11: in = 5 V; out = 5 V 21: in = 8 V to 16 V; out = 5 V 22: in = 11 V to 16 V; out = 10 V Z: other	A: analog CW B: analog CCW C: PWM CW D: PWM CCW E: analog crossed F: PWM crossed Z: other (custom)	0000



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